CALFED Science Program
Scope and Functions

Purpose and Scope of the CALFED Science Program

The purpose of the CALFED Science Program is to provide a comprehensive framework to provide new information and scientific interpretations necessary to implement, monitor, and evaluate the success of the CALFED Program. The science program will use an adaptive management approach. New information and scientific interpretations will be used to confirm or modify all aspects of the science program, including problem definitions, conceptual models, research, and implementation actions.

The scope of the CALFED Science Program will provide scientific information for the CALFED Program as defined by the EIS/R, and for the State and Federal water operations. While all the CALFED Programs will have a science component to address areas of less certainty, some program such as the ecosystem program strongly rely significantly on a adaptive management science program. The Science Program should provide information to decision-makers to implement actions taken for regulatory or nonregulatory purposes. The following functions constitute the CALFED Science Program.

Functions

1. Science Planning and Priorities. CALFED will develop broad science priorities to guide monitoring, research, trial implementation actions. The priorities will support the scientific information needed to make management decisions during or at the end of Stage 1. Priorities will be developed with independent scientific review, agency and stakeholder input, and coordination among program managers. Priorities will be submitted to Policy Group/Commission for approval.

   CALFED will review and if necessary refine science based performance measures and indicators for each program are on an ongoing basis to ensure the CALFED Program is effectively measuring and reporting on the program success.

2. Monitoring. CALFED will conduct monitoring to provide information to assess progress towards meeting goals and objectives of CALFED. Monitoring will be done at several levels:

   - System-wide status and trends (baseline) of the Bay-Delta and watershed -- This monitoring helps identify long-term changes occurring as a result of human and natural factors.

   - Individual projects and actions -- This monitoring helps determine if objectives of

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the project or action are being accomplished. This includes monitoring for enhancement actions and compliance monitoring as part of mitigation requirements.

- Real-time monitoring for water project operations -- This near real-time monitoring of the presence of fish near the project pumps provides operators with data to adjust operations to protect fish and maintain water supply reliability.

Monitoring protocols will be developed for all types of monitoring to ensure data consistency for each category of project/action.

3. Data Management. CALFED will develop and maintain a public online centralized repository of the monitoring data and other relevant data. The data in the centralized database will be used for comprehensive analysis and reporting and available to agency and nonagency scientists. Data will be subject to strict quality assurance/quality control protocols. Data will be made available when needed for assessment and reporting requirements.

4. Assessment. CALFED will perform data analysis and interpretation of the raw data generated in the monitoring programs in order to evaluate the overall performance of the CALFED Program. The data analysis and interpretation will be done by CALFED scientists but subject to independent peer review. CALFED will provide scientific judgements as necessary in order for decision-makers to make program decisions. The assessment will detect:

   - System-wide trends of program indicators
   - Project level responses of indicators
   - Real-time trends of indicators relevant to water operations

5. Research. CALFED will manage a focused research program that targets key scientific uncertainties related to program decisions. Research priorities will be based on the science priorities described above (Function #1). The purpose of the research program is to determine why consequences of actions happen, while the monitoring program describes what consequences happened. Gaining an understanding of why trends changed or why projects resulted in certain consequences is a critical element of the adaptive management process. The program will develop and maintain conceptual models that link important causes and effects.

6. Trial Implementation Actions (pilot and full scale). CALFED will design and execute trial implementation actions. A trial implementation action is one in which there is some level of uncertainty on the effects of the action, but the level of knowledge and information supports trial implementation. Trial actions will follow scientific principles and processes. Depending on the level of knowledge and information available, trial

actions may be designed as pilot actions or full scale actions. Data from the trial actions will be assessed and reported as part of the science program and adaptive management process.

7. Reporting. CALFED will disseminate findings to the state and federal agencies, scientific community, general public, stakeholders and decision-makers. The scientific data and findings will be converted to useful information for policy level interests and decision-makers and disseminated through published reports, scientific articles, and briefings and conferences. Findings will be provided for all levels of monitoring (system-wide, project level, and real-time) and from focused research. Reports should also be provided to regulatory agencies which summarize scientific knowledge for use in biological opinions of listed species.

8. Independent Science Review. CALFED will provide independent science review for all aspects of the science program, including scientific studies affecting water operations.

9. Coordination. CALFED will coordinate with all other science programs that are based in the Bay-Delta and its' watershed. CALFED will coordinate all science functions listed above with the other related programs. When appropriate, existing programs and new CALFED programs will be merged to increase the usefulness of the data generated and reduce duplication.